

ABSTRACT OF THE DISCLOSURE

The invention provides a method of fabricating a semiconductor device in which a more satisfactory selective etching ratio is ensured when AlGaAs is used for a layer provided with a semiconductor element, and provides a semiconductor element composite, an electro-optical apparatus, and an electronic system, each including the semiconductor device fabricated by the method. A method of fabricating a semiconductor device includes: forming a functional layer provided with a semiconductor element on a substrate with a sacrificial layer therebetween; and detaching the functional layer from the substrate by etching the sacrificial layer. The sacrificial layer is composed of an N-type $\text{Al}(x_1)\text{Ga}(1-x_1)\text{As}$ layer and the functional layer is composed of an $\text{Al}(x_2)\text{Ga}(1-x_2)\text{As}$ semiconductor layer, where $x_1 > x_2$. Using hydrochloric acid or hydrofluoric acid with a concentration of 0.01% to 5% by weight as an etchant, the sacrificial layer is etched while the sacrificial layer is being irradiated with light.